


BASELINE



Management of the Safety and Mission Assurance Readiness Review (SMARR) Process


Bryan O'Connor
Chief Safety and Mission Assurance

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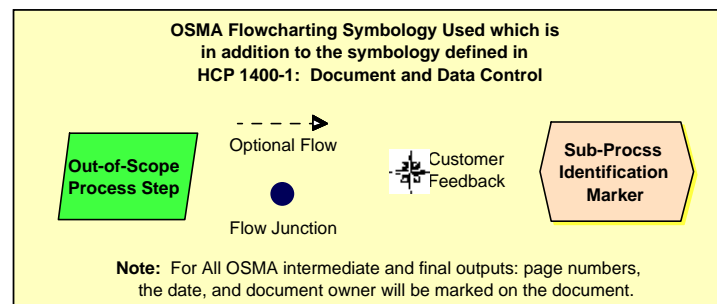
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HOWI Author: RAD/Leonard B. Sirota

OSMA Staff Member Responsible for this HOWI: RAD/J. Stephen Newman, D.Sc.

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1. Purpose

The purpose of this Office of Safety and Mission Assurance (OSMA) Headquarters Office Work Instruction (HOWI) is to document the process of how OSMA prepares for and conducts Safety and Mission Assurance Readiness Reviews (SMARRs) and supporting meetings for Human Space Flight (HSF), Expendable Launch Vehicle (ELV), Experimental Aerospace Vehicle (EAV), and other NASA programs and projects. This HOWI also specifies the Quality Records associated with the process.

The SMARR is a review held prior to selected high-risk program or project activities with the Chief Safety and Mission Assurance (SMA). The SMARR provides the Chief SMA with the knowledge he needs to sign the Certificate of Flight Readiness (CoFR), or to give the program's Mission Directorate Associate Administrator an assessment of the mission safety and mission success risks. It includes relevant aspects of independent assessment, Institutional/Facility/Operational (IFO) Safety Audit, Programmatic Audit and Review (PA&R) process, and other relevant information sources (e.g., technical issues, minority opinions, etc.). The SMARR prepares the Chief SMA by providing assurance that all required SMA activities have been performed, that the Baseline Requirements Set (BRS) has been met, and that the program/project has not exceeded the acceptable risk envelope. The SMARR may be conducted by a Center SMA Director for program/project readiness reviews that are held by the Center; this HOWI can serve as a guide for the conduct of these SMARRs.

This HOWI supports HOWI 8700-GC009: Coordinating OSMA Participation in the Space Shuttle CoFR Process and HOWI 8700-GC010: Coordinating SMA Participation in the International Space Station CoFR Process.

2. Scope and Applicability

This HOWI is applicable to the OSMA SMARR Manager, the OSMA Mission Support Division (MSD), and the OSMA Review and Assessment Division (RAD).

3. Definitions

- 3.1. BRS: Baseline Requirements Set
- 3.2. CoFR: Certification of Flight Readiness
- 3.3. EAV: Experimental Aerospace Vehicle
- 3.4. ELV: Expendable Launch Vehicle
- 3.5. FRR: Flight Readiness Review
- 3.6. HOWI: Headquarters Office Work Instruction
- 3.7. HSF: Human Space Flight
- 3.8. IFO: Institutional/Facility/Operational
- 3.9. ISS: International Space Station

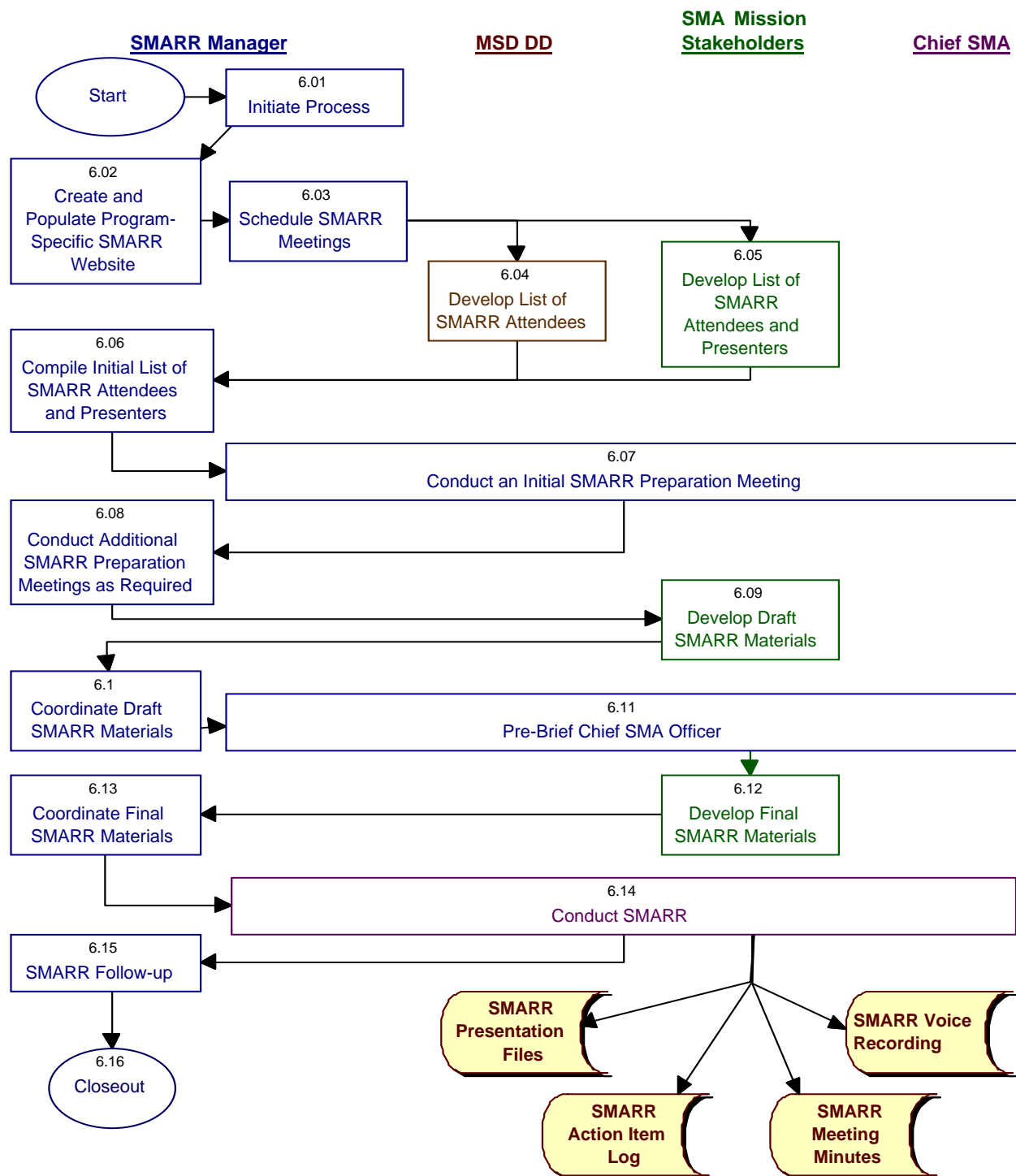
- 3.10. MSD: Mission Support Division
- 3.11. PA&R: Programmatic Audit and Review
- 3.12. OSMA: Office of Safety and Mission Assurance
- 3.13. QMS: Quality Management System
- 3.14. RAD: Review and Assessment Division
- 3.15. SMA: Safety and Mission Assurance
- 3.16. SMARR: Safety and Mission Assurance Readiness Review

4. Reference Documents

The documents listed in this section are used as reference materials for performing the processes covered by the Quality Management System (QMS). Since all NASA Headquarters Level 1 (QMS Manual) and Level 2 (Headquarters Common Processes) documents are applicable to the QMS, they need not be listed in this section unless specifically referenced in this OSMA HOWI.

- 4.1. NPD 8610.24A: *Expendable Launch Vehicle Launch Services Pre-launch Readiness Reviews*
- 4.2. NPR 8715.3: *NASA Safety Manual*
- 4.3. NASA-STD-8719.8: *Expendable Launch Vehicle Payload Safety Review Process Standard*
- 4.4. OSMA-SMARR-05-01: Safety and Mission Assurance Readiness Review (SMARR) Process
- 4.5. NSTS 22778: *Space Shuttle Commit-To-Flight Assessment Review Process Operating Plan*
- 4.6. SSP 50108: *Certification of Flight Readiness Process Document, International Space Station Program*

5. Flowchart



6. Procedure

6.01 SMARR Manager Initiate Process:

SMARRs are performed at the request of and for the benefit of the Chief SMA and are required for ELV and HSF launches and other SMA-critical Agency activities selected by the Chief SMA. SMARRs can be convened for the following reasons:

- Mission launch (e.g.; FRR preparation)
- Major milestone in a program (e.g.; Nuclear Launch Safety Approval)
- Reentry (e.g.; Stardust)
- Major problem in program (e.g.; Shuttle return to flight)

The SMARR Manager is a member of the RAD.

6.02 SMARR Manager Create and Populate Program-Specific SMARR Website:

Once the need for a SMARR has been identified, the SMARR Manager creates a program/project SMARR website and invites program/project members to support SMARR planning. The site is initially populated with meeting schedules, agendas, SMARR templates, and other helpful data.

6.03 SMARR Manager Schedule SMARR Meetings:

Once the website has been established, the SMARR Manager schedules a SMARR preparation meeting, any additional required preparation meetings, and the SMARR. The SMARR Manager coordinates with the Chief SMA's secretary to make sure that the SMARR is scheduled for a date and time convenient to the Chief SMA. The SMARR Manager also reserves a conference room for the preparation meetings and SMARR that includes teleconferencing and projection capabilities.

6.04 MSD Develop List of SMARR Attendees

Upon notification by the SMARR Manager, the MSD develops a list of personnel they believe should be invited to attend the SMARR and/or associated preparation meetings and gives it to the SMARR Manager.

6.05 Mission SMA Stakeholders Develop List of SMARR Attendees and Presenters

The various SMA entities with a stake in the mission for which the SMARR is being held develop a list of attendees from their organizations for the SMARR preparation meeting(s) and the SMARR. These attendees should include representatives from the Program and Center SMA communities, as well as other mission SMA stakeholders, including any individuals or organizations which have performed assessments related to the upcoming activity. They also identify which of the attendees will be presenting at the SMARR. These lists are to be given to the SMARR Manager.

- 6.06 SMARR Manager Compile Initial List of SMARR Attendees and Presenters:
The SMARR Manager compiles the lists developed by the MSD and the SMA Mission Stakeholders and sends out an e-mail announcement of the SMARR preparation meeting(s), and the SMARR. The SMARR Manager also ensures that all required individuals have access to the program/project SMARR website.
- 6.07 SMARR Manager, MSD, RAD, SMA Mission Stakeholders
Conduct an Initial SMARR Preparation Meeting:
The SMARR Manager conducts a SMARR preparation meeting(s) with the program SMA Manager, MSD and RAD Representatives, and other SMA stakeholders. The initial SMARR preparation meeting is used to explain the SMARR process for those who are not familiar with it, review the SMARR presentation template, request the identification of presenters and attendees, choose an appropriate schedule and agenda for the upcoming SMARR, and/or schedule additional SMARR preparation meetings as necessary. Weekly SMARR preparation meeting(s) will be held for all HSF missions prior to the SMARR.
- 6.08 SMARR Manager Conduct Additional SMARR Preparation Meetings as Required:
After the initial SMARR preparation meeting, when additional SMARR preparation meetings are required, the participants identify topics and assign presenters. All attendees are responsible for bringing forward any significant residual risks which may impact the safety and/or mission success of the upcoming milestone as well as any necessary status briefings (e.g., on-orbit status).
- 6.09 SMA Mission Stakeholders Develop Draft SMARR Materials
The SMA Mission Stakeholders, using the templates provided by the SMARR Manager, where possible, develop the draft SMARR materials and provide them to the SMARR Manager seven business days before the SMARR.
- 6.10 SMARR Manager Coordinate Draft SMARR Materials:
The SMARR Manager coordinates the Draft SMARR Materials provided by the Mission SMA Stakeholders to review these materials for acceptability, and provides any comments or suggestions to the SMA Mission Stakeholders or initiate action/activity to address any deficiencies in materials.
- 6.11 SMARR Manager, MSD Pre-Brief Chief SMA
The SMARR Manager and appropriate MSD representatives brief the Chief SMA on the material that will be presented at the upcoming SMARR.
- 6.12 SMA Mission Stakeholders Develop Final SMARR Materials
The SMA Mission Stakeholders make any required updates to the draft SMARR materials and provide them to the SMARR Manager two business days before the SMARR.

6.13 SMARR Manager Coordinate Final SMARR Materials:

The SMARR Manager coordinates the assembly of the final charts provided by the SMA Mission Stakeholders into a comprehensive SMARR presentation package. The SMARR Manager adds any charts which are generated at Headquarters, coordinates the integration of the materials into the final package, posts the completed presentation to the SMARR website (a part of the PBMA Webiste), and distributes the review materials to the SMARR participants.

6.14 SMARR Manager, MSD, Mission SMA Stakeholders, Chief SMA Conduct SMARR:

The SMARR is chaired by the Chief SMA, with the SMARR Manager facilitating logistics and serving as counsel to the Chief SMA during the review. Representatives from the OSMA MSD, SARD, and RAD are responsible for participating in a readiness poll at the end of the SMARR, which represents the collective opinion of each division to continue toward the upcoming activity.

6.15 SMARR Manager SMARR Follow-up:

Throughout the preparation and presentation of the SMARR, the SMARR Manager is responsible for recording and tracking action items. When all action items have been closed, the SMARR Manager prepares two identical SMARR compact disks containing a copy of the final SMARR Presentation, the SMARR voice recording, SMARR attendance and meeting minutes, and a summary of closed action items. One copy of the compact disk is kept by the SMARR Manager, and the second is stored in a remote location. The SMARR action item log, meeting minutes and presentation files are posted on the SMARR website.

6.16 SMARR Manager Close-out:

The process is complete.

7. Quality Records

Record ID	Owner	Location	Media Electronic /hardcopy	Schedule Number & Item Number	Retention & Disposition
SMARR Action Item Log	SMARR Manager	SMARR Website and CD in RAD Files	Electronic	Schedule: 5 Item: 29	Send to FRC 1 year after mission complete then destroy 6 years after mission complete
SMARR Meeting Minutes	SMARR Manager	SMARR Website and CD in RAD Files	Electronic	Schedule: 5 Item: 29	Send to FRC 1 year after mission complete then destroy 6 years after mission complete
SMARR Presentation Files	SMARR Manager	SMARR Website ¹ and CD in RAD Files	Electronic	Schedule: 5 Item: 29	Send to FRC 1 year after mission complete then destroy 6 years after mission complete
SMARR Voice Recording	SMARR Manager	SMARR CD in RAD Files	Electronic	Schedule: 5 Item: 29	Send to FRC 1 year after mission complete then destroy 6 years after mission complete

¹ <http://secureworkgroups.grc.nasa.gov/osma-smarr/>